

## Friday Worksheet

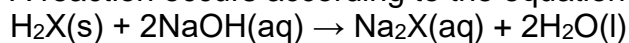
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### Volumetric 1

0.326 g of a pure acid,  $\text{H}_2\text{X}(\text{s})$ , reacts with exactly 100 mL of 0.105 M  $\text{NaOH}(\text{aq})$ .

A reaction occurs according to the equation



Calculate

i. the amount, in mol, of  $\text{NaOH}$  that is added to the acid  $\text{H}_2\text{X}$ .

$$\text{Mol of NaOH} = C \times V = 0.105 \text{ M} \times 0.100 \text{ L} = 0.0105 \text{ mol}$$

ii. the amount, in mol, of acid  $\text{H}_2\text{X}$ .

$$\text{Mol of H}_2\text{X} = \frac{1}{2} \text{ mol of NaOH} = \frac{1}{2} \times 0.0105 = 0.00525$$

iii. the molar mass, in  $\text{g mol}^{-1}$ , of the acid  $\text{H}_2\text{X}$

$$\text{mass} = \text{mol} \times \text{formula mass}$$

$$\Rightarrow \text{formula mass} = \text{mass/mol} = 0.326 \text{ g} / 0.00525 \text{ mol} = 62 \text{ mol/g}$$

iv. Identify acid  $\text{H}_2\text{X}$

*The only diprotic acid with a formula mass of 62 is  $\text{H}_2\text{CO}_3$*

